REMARKS

Claims 1 and 101 have been amended. Applicants reserve the right to pursue the original claims in this and in any other application.

Claims 1-3, 28, 35, 101-104 and 120 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ozeki in view of Kuo. Appellants respectfully traverse the rejection. Claim 1 recites "a memory system comprising a memory controller; a bi-directional optical link for transmitting data to and from the memory controller; at least one memory storage device, each at least one memory storage device comprising a memory-side electro-optical converter coupled to the bi-directional optical link; a controller-side electro-optical converter for converting communications between the memory controller and the bi-directional optical link; a wave length detector for detecting a wave length of optical signals sent from the controller-side electro-optical converter and supplying the detected wave length to the memory controller; and a wave length adjuster for adjusting the wave length of the optical signals based upon the detected wave length received from the memory controller." The Ozeki/Kuo combination does not disclose, teach or suggest all of these limitations.

First, the Ozeki/Kuo combination does not disclose, teach or suggest "*supplying the detected wave length to the memory controller* and a wave length adjuster for adjusting the wave length of the optical signals based upon the detected wave length *received from the memory controller*" as recited in claim 1. Even if Kuo's optical detector 122 detects a wave length, which as described below it does not, any allegedly detected wave length of Kuo is not supplied to a memory controller. As a result, if one of ordinary skill in the art combined the laser transmitter 100 of Kuo with the system of Ozeki, the laser transmitter 100 would not supply any allegedly detected wave length to a memory controller or adjust the wave length based upon any wave length received from a memory controller. Instead, the resulting Ozeki/Kuo combination would have optical detector 122 supplying an alleged detected wavelength to the wavelength control circuit 130 within the same laser transmitter 100, and the wavelength control circuit 130 providing the wavelength adjustment information to the laser 112 within the same laser transmitter 100. To be clear, the Ozeki/Kuo

combination does not disclose, teach or suggest the transfer of a detected wavelength to or from a memory controller. As a result, the Ozeki/Kuo combination does not render obvious claim 1 for at least this reason.

Second, the Ozeki/Kuo combination does not disclose, teach or suggest "a wave length detector for detecting a wave length of optical signals" as recited in claim 1. The Office Action admits that Ozeki does not teach this limitation, but states that optical detector 122 of Kuo reads on the wave length detector of claim 1. Kuo, however, merely teaches that "[o]ptical detector 122 converts the received optical signal into an electrical representation" (Kuo, at col. 4, lns. 4-6), meaning that the optical detector 122 of Kuo merely converts an optical signal to an electrical signal, and does not teach that optical detector 122 detects a wavelength. The Ozeki/Kuo combination does not render obvious claim 1 for at least this reason.

Third, the Ozeki/Kuo combination does not disclose, teach or suggest "a wave length adjuster for adjusting the wave length of the optical signals based upon the detected wave length received from the memory controller" as recited in claim 1. The Office Action concedes that this limitation is not taught by Ozeki, but contends that the wavelength control circuit 130 of Kuo reads on the wave length adjuster of claim 1. The wavelength control circuit 130 of Kuo, however, does not adjust the wave length *based upon the wave length* as recited in claim 1. As stated above, Kuo does not detect a wave length as recited in claim 1, and Kuo therefore cannot adjust the wave length based upon the wave length as recited in claim 1. Instead, the wavelength control circuit 130 of Kuo controls the wave length based upon "the amplitude and phase of the detected signal," which is described at column 4, lines 36-43:

> The amplitude and phase of the detected signal (i.e., at the dither frequency or at higher harmonics of the dither frequency) comprises the error signal that is then processed and averaged. The averaged signal is then summed with a dither signal to provide a composite signal. A control signal corresponding to the composite signal is then generated and used to adjust the wavelength of laser 112.

As a result, the Ozeki/Kuo combination does not render obvious claim 1 for at least this reason as well.

Fourth, the Ozeki/Kuo combination does not disclose, teach or suggest "supplying the detected wave length to the memory controller" as recited in claim 1. In particular, neither Ozeki nor Kuo discloses, teach or suggest supplying *any* wavelength to a memory controller, and therefore cannot disclose, teach or suggest supplying a detected wave length to the memory controller as recited in claim 1. The Office Action concedes that Ozeki does not teach this limitation, and does not provide detail as to how Kuo cures the deficiencies of Ozeki. As a result, the Ozeki/Kuo combination does not render obvious claim 1 for at least this reason.

Fifth, the Office Action erroneously contends that Ozeki teaches "at least one memory storage device, each at least one memory storage device *comprising a memory-side electro-optical converter* coupled to the bi-directional optical link." In particular, the Office Action states on page 2 that Ozeki's interface 12 reads on the "memory side electro-optical converter" of claim 1. Kuo's interface 12, however, is only on the side of optical bus 13 opposite from the memory (i.e., the processor side). *See* Ozeki, FIG. 1. To be clear, neither Ozeki nor Kuo teach a *memory-side electro-optical converter*. The Ozeki/Kuo combination, therefore, does not render obvious claim 1 for at least this reason as well.

Claim 101 recites a "method of operating a memory system comprising receiving an electrical signal output from a memory controller; converting said electrical signal output from said memory controller to an optical signal for transmission on an optical path; obtaining wavelength information from the optical signal on said optical path; providing said wavelength information to said memory controller; receiving the wavelength information from the memory controller; generating wavelength adjustment information based upon the wavelength information; providing said wavelength adjustment information to the memory controller; adjusting the wavelength of said optical path based on wavelength adjustment information received from the memory controller; and transmitting said optical signal over the optical path directly to a memory module." The Ozeki/Kuo combination does not disclose, teach or suggest all of these limitations.

First, if one of ordinary skill in the art combined the laser transmitter 100 of Kuo with the system of Ozeki, the combination with not "provid[e] wavelength information to said memory controller," "receiv[e] wavelength information from the memory controller," or "provid[e] wavelength adjustment information to the memory controller." Instead, the resulting Ozeki/Kuo combination would have the optical detector 122 providing the alleged wavelength information to the wavelength control circuit within the same laser transmitter 100, and the wavelength control circuit 130 providing the wavelength adjustment information to the laser 112 within the same laser transmitter 100. To be clear, the Ozeki/Kuo combination does not disclose, teach or suggest the transfer of a wavelength information or wavelength adjustment information to or from a memory controller. As a result, the Ozeki/Kuo combination does not render obvious claim 101 for at least this reason.

Second, claim 101 recites "generating wavelength adjustment information based upon the wavelength information," which is not taught, disclosed or suggested by the Ozeki/Kuo combination. As stated above, the wavelength controller 130 of Kuo does not control the wavelength based on the wavelength or wavelength information, but instead controls the wavelength based upon "the amplitude and phase of the detected signal." As a result, the Ozeki/Kuo combination does not render obvious claim 101 for at least this reason.

Claim 28 depends from claim 1 and is therefore patentable over the Ozeki/Kuo combination for at least the reasons provided above with respect to claim 1. In addition, claim 28 is patentable over the Ozeki/Kuo combination on its own merits because the Ozeki/Kuo combination does not disclose, teach or suggest that the "memory controller is arranged and configured to provide wavelength adjustment information to said wave length adjuster," as recited in claim 28. In particular, if one of ordinary skill in the art combined the laser transmitter 100 of Kuo with the system of Ozeki, the resulting combination would not have a memory controller providing wavelength adjustment information a wavelength adjuster, but instead would have the wavelength control circuit 130 providing the wavelength adjustment information to the laser 112 within the same laser transmitter 100. As a result, claim 28 is patentable over the Ozeki/Kuo combination on its own merits.

In addition, the Ozeki/Kuo combination does not render obvious the claims because Kuo is nonanalogous art under M.P.E.P. § 2141.01(a). The claimed invention is directed to a memory system having a bi-directional optical link for transmitting data between a controller and a memory storage device. Kuo, in contrast, is directed to wavelength control that is "especially suited for controlling the wavelength of wide tuning lasers." Kuo, col. 2, lines 38-39. Appellants, therefore, contend that Kuo would not have "logically commended itself to an inventor's attention in considering his or her invention as a whole," as required by M.P.E.P. § 2141.01(a). For this reason as well, the rejection should be withdrawn.

Claims 2-3 and 35 depend from claim 1. Claims 102-104 and 120 depend from claim 101. Accordingly, the rejection should be withdrawn and the claims allowed.

Claims 24, 25, 33, 34, 36, 38, 40, 105-107, 115, 118, 119, 122, 151 and 159 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ozeki in view of Kuo and Acton. Appellants respectfully traverse the rejection. Claims 24, 25, 33, 34, 36, 38, 40 and 151 depend from claim 1 and are patentable over the Ozeki/Kuo combination for at least the reasons set forth above with respect to claim 1. In addition, claims 106, 107, 115, 118, 119, 122, and 159 depend from claim 101 and are patentable over the Ozeki/Kuo combination for at least the reasons set forth above with respect to claim 101. Acton, cited as teaching command data and a clock signal, does not cure the deficiencies of the Ozeki/Kuo combination. Accordingly, the rejection should be withdrawn and the claims allowed.

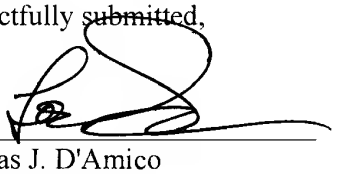
Claims 9, 15-23, 108, 111-113, 152-154 and 160-163 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ozeki in view of Kuo, Acton and Fee. Appellants respectfully traverse the rejection. Claims 9, 15-23 and 152-154 depend from claim 1 and are patentable over the Ozeki/Kuo combination for at least the reasons set forth above with respect to claim 1. In addition, claims 108, 111-113, and 160-162 depend from claim 101 and are patentable over the Ozeki/Kuo combination for at least the reasons set forth above with respect to claim 101. Neither Acton, cited as teaching command data and a clock signal, nor Fee, cited as teaching multiplexed optical channels, cure the deficiencies of the Ozeki/Kuo combination. Claim 163 was canceled in

an Amendment filed on April 22, 2009. Accordingly, the rejection should be withdrawn and the claims allowed.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: October 21, 2010

Respectfully submitted,



By_____

Thomas J. D'Amico
Registration No.: 28,371
S. Gregory Herrman
Registration No.: 66,271
DICKSTEIN SHAPIRO LLP
1825 Eye Street, NW
Washington, DC 20006-5403
(202) 420-2200
Attorneys for Applicants